



# PATENT SPECIFICATION

NO DRAWINGS

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## COMPLETE SPECIFICATION

### Polish Compositions

We, IMPERIAL CHEMICAL INDUSTRIES LIMITED, a British Company, of Imperial Chemical House, Millbank, London, S.W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to polish compositions. Polish compositions often take the form of mixtures of wax and a liquid medium, usually hydrocarbon solvents, and they may be in the form of a paste, when high proportions of wax, for example 20—40% by weight are present; or of a liquid, when lower proportions of wax, for example about 10% by weight are present; or of a cream, when the wax/liquid medium composition is emulsified, for example in water.

According to the present invention, there is provided a wax/liquid medium composition, suitable for use as a polish, in which a part of the liquid medium is tert.-butanol, isobutanol, sec-butanol or sec-propanol.

Wax/liquid medium compositions according to the present invention may suitably contain between about 50% and about 95% by weight of the liquid medium. As stated above, the alcohol to be used in the liquid medium is tert.-butanol, isobutanol, sec-butanol, or sec-propanol. The amount of alcohol in the liquid medium may vary between wide limits. Preferably up to 50% by weight of alcohol in the liquid medium is used, and usually between 10% and 40% by weight is sufficient. The remainder of the liquid medium may conveniently be at least one hydrocarbon solvent. This hydrocarbon solvent may be any hydrocarbon solvent suitable for use in polish compositions, for example the solvents commonly known as turpentine, solvent naphtha and white spirit.

Waxes suitable for use in the compositions of the present invention include the so-called hard waxes, for example carnauba or a syn-

thetic substitute therefor, or spirit bonding wax for example ceresin, beeswax, or a synthetic substitute therefor, or paraffin wax. Preferably however the wax is a blend or combination of hard wax, spirit bonding wax and paraffin wax. For example a suitable blend of waxes contains between about 30% and about 80% by weight of paraffin wax together with hard wax and spirit bonding wax in the ratio 1:3 to 3:1 by weight. Any of the waxes, that is hard wax, spirit bonding wax and the paraffin wax may themselves be blends of more than one component.

The compositions of the present invention are suitable for use as polishes in the form of pastes, liquids or emulsions. They are particularly suitable for use however as pastes or liquids in which case the compositions may conveniently contain about 20% to about 50% by weight and about 5% to about 20% by weight of wax respectively.

The compositions of the present invention may also include other components suitable for use in polish compositions, for example, silicones, dyes, pigments, perfumes, abrasives and anti-slip agents.

The compositions of the present invention may be made in any suitable manner, for example the waxes may be melted together, mixed with the preheated liquid medium, and any other ingredients, cooled to a predetermined temperature a little above the setting point of the polish composition now formed, and poured into tins.

#### EXAMPLES 1, 2 AND 3

In the following Examples 1, 2 and 3 paste polishes according to the invention were made up by melting waxes together, blending in preheated alcohol and hydrocarbon mixture, cooling to a temperature a little above the setting point and pouring the resulting polish into tins. The polishes made up in this way were then tested and compared with polishes of the prior art the results being given in Tables 1, 2 and 3 respectively.

TABLE 1

Example	Carnauba % by wt.	Ceresin % by wt.	Paraffin wax % by wt.	Turpen- tine % by wt.	Alcohol % by wt.	Alcohol used
1a	8	8	8	72	4	isobutanol
b	8	8	8	57	19	isobutanol
c	8	8	8	38	38	isobutanol
d	8	8	8	19	57	isobutanol
e	8	8	8	4	72	isobutanol
f	8	8	8	72	4	sec-propanol
g	8	8	8	57	19	sec-propanol
h	8	8	8	38	38	sec-propanol
i	8	8	8	19	57	sec-propanol
j	8	8	8	4	72	sec-propanol

TABLE 2

Example	Carnauba % by wt.	Ceresin % by wt.	Paraffin wax % by wt.	White Spirit % by wt.	Alcohol % by wt.	Alcohol used
2a	7.5	7.5	10	56	19	isobutanol
b	7.5	7.5	10	37.5	37.5	isobutanol
c	7.5	7.5	10	19	56	isobutanol
d	7.5	7.5	10	56	19	sec-butanol
e	7.5	7.5	10	37.5	37.5	sec-butanol
f	7.5	7.5	10	19	56	sec-butanol

TABLE 3

Example	Carnauba % by wt.	Ceresin % by wt.	Paraffin wax % by wt.	White Spirit % by wt.	Alcohol % by wt.	Alcohol used
3a	2.5	2.5	20	56	19	isobutanol
b	2.5	2.5	20	37.5	37.5	isobutanol
c	2.5	2.5	20	19	56	isobutanol
d	2.5	2.5	20	56	19	secpropanol
e	2.5	2.5	20	37.5	37.5	secpropanol
f	2.5	2.5	20	19	56	secpropanol

In all cases the polishes according to the invention were found to be superior to those of the prior art in the following respects:—

- 5 (1) They had a reduced tendency to crack on cooling and therefore less fine control of the conditions of pouring was required.
- (2) They were paler in colour.
- 10 (3) They solidified more rapidly on cooling.
- (4) The rate of evaporation of liquid medium from the paste in bulk was reduced.
- 15 (5) Differential crystallisation of the waxes was prevented.

The compositions of Example 1 were compared with a polish comprising 8% by weight carnauba, 8% by weight ceresin, 8% by weight paraffin wax and 76% by weight turpentine.

- 20 The compositions of Example 2 were compared with a polish comprising 7.5% by weight carnauba, 7.5% by weight ceresin, 10%

by weight paraffin wax and 75% by weight white spirit.

The compositions of Example 3 were compared with a polish comprising 2.5% by weight carnauba, 2.5% by weight ceresin, 20% by weight paraffin wax and 75% by weight white spirit.

#### EXAMPLES 4 AND 5

The Examples 4 and 5 demonstrate the reduced loss in weight caused by solvent evaporation when the alcohols of the present invention are incorporated in the polish compositions. The paste polishes were made up as described above and the tins kept uncovered in a constant temperature cabinet at 20°C and weighed and inspected daily. The loss of weight caused by solvent evaporation was noted and expressed in terms of the Retention Number (= percentage of the original solvent retained after the stated time).

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TABLE 4

Blend	Waxes, wt. %										Solvent, wt. %		Retention Number after days		
	Car-nauba	Cande-lilla	Montan	Bees-wax	Ceresine	Micro-cryst-alline	Paraffin, m.p.t. °F			White Spirit	Iso-butanol				
							110—7	125—30	130—5						
4a	-	8	-	8	-	-	8	-	-	76	-	92.4	86.2	82.7	
b	-	8	-	8	-	-	8	-	-	38	38	92.4	88.7	85.7	
c	8	-	-	-	8	8	-	-	-	76	-	94.3	86.2	77.0	
d	8	-	-	-	8	8	-	-	-	38	38	95.5	92.8	90.6	
e	-	-	8	-	8	-	-	8	-	76	-	96.6	94.9	91.9	
f	-	-	8	-	8	-	-	8	-	38	38	97.6	95.2	92.8	
g	-	-	8	-	8	-	-	-	8	76	-	97.9	96.1	93.3	
h	-	-	8	-	8	-	-	-	-	38	38	98.1	95.7	93.8	
i	8	-	-	-	8	-	-	-	8	76	-	96.3	91.6	86.9	
j	8	-	-	-	8	-	-	-	8	38	38	96.4	92.6	88.5	

TABLE 5

Blend	Waxes, wt. %					Solvent, wt. %		Retention Number after days		
	Hoechst synthetic waxes			Cere-sine	Para-ffin m. 120 - 5°F	White Spirit	Iso-butanol	4	8	12
	OM	OP	F							
5a	3.5	1.5	0.5	10.0	12.5	72	—	94.8	85.2	73.0
b	"	"	"	"	"	54	18	96.0	89.0	79.0
c	"	"	"	"	"	36	36	97.0	92.0	84.8
d	"	"	"	"	"	18	54	96.4	93.0	89.0
e	"	"	"	"	"	—	72	97.0	93.2	89.2

5 The Retention Number for 4, 8 and 12 days are recorded in Tables 4 and 5. These figures show that the presence of isobutanol in the solvent blend has the effect of decreasing the rate of solvent loss from the paste. Example 4 shows this effect for a variety of polish compositions containing different waxes, but the same, 38% by weight, amount of isobutanol. 10 In Example 5 the waxes are maintained constant and the weight percentage of the iso-

butanol varied. In addition to the improved Retention Numbers the pastes containing isobutanol in the solvent blend were paler in colour, and showed a lesser tendency to form cracks on cooling, when compared with those containing white spirit alone. 15

## EXAMPLE 6

The wax pastes described in Example 6 were made up as described in Examples 1, 2 and 3. 20

TABLE 6

Blend	Waxes, wt. %			Solvent, wt. %		
	Carnauba	Beeswax	Paraffin m. 110 - 7°F	White Spirit	sec-butanol	sec. propanol
6a	8	8	8	76	—	—
b	8	8	8	57	19	—
c	8	8	8	38	38	—
d	8	8	8	19	57	—
e	8	8	8	57	—	19
f	8	8	8	38	—	38
g	8	8	8	19	—	57

25 In comparison with 6a, in Table 6, which includes no alcohol, pastes 6b to 6g which include either secondary butanol or sec-propanol, showed a considerably reduced tendency to form cracks and for wax crystals to separate on the surface of the paste.

## EXAMPLE 7

Wax pastes were made up as described in Examples 1, 2 and 3 to the formulations shown in Table 7. 30

TABLE 7 "

Blend	Waxes, wt. %			Solvent, wt. %	
	Carnauba	Ceresin	Paraffin m. 130 - 5°F	White Spirit	iso- butanol
7a	2.5	2.5	20	75	—
b	2.5	2.5	20	57	18
c	5	5	15	75	—
d	5	5	15	57	18

Blends 7a and 7c were found to be too soft for use as paste polishes, but blends 7b and 7d which contained isobutanol had a much better consistency. In polishing tests in which samples of each of the blends were applied to a matt black painted metal test panel and buffed, blends 7b and 7d were superior to blends 7a and 7c in ease of application and rate of build-up of gloss.

## EXAMPLE 8

Wax pastes were made as described in Examples 1, 2 and 3 incorporating tertiary butanol. A liquid silicone polymer of 300 centistokes viscosity was also added to one of the formulations as shown in Table 8. Both blends formed pastes of satisfactory consistency and both showed greater ease of application when compared with blend 8c which contained no alcohol.

TABLE 8

Blend	Waxes, wt. %			Solvent, wt. %		Silicone Polymer Wt. %
	Carnauba	Ceresine	Paraffin m. 110 - 7°F	White Spirit	tertiary butanol	
8a	8	8	8	72	4	—
b	8	8	8	70	4	2
c	8	8	8	76	—	—

## WHAT WE CLAIM IS:—

1. A composition of matter, suitable for use as a polish, which comprises a wax/liquid medium in which part of the liquid medium is tert.-butanol, sec-butanol, sec-propanol or iso-butanol.

2. A composition according to Claim 1 in which the liquid part comprises 50% to 95% by weight of the wax/liquid medium.

3. A composition according to Claims 1 and 2 in which the wax comprises a natural hard wax or a synthetic substitute therefor.

4. A composition according to Claim 3 in which the hard wax is carnauba wax.

5. A composition according to Claims 1 and 2 in which the wax comprises a natural spirit bonding wax or a synthetic substitute therefor.

6. A composition according to Claim 5 in which the spirit bonding wax is ceresin or beeswax.

7. A composition according to Claims 1 and 2 in which the wax comprises a natural paraffin wax or a synthetic substitute therefor.

8. A composition according to Claims 1 and 2 in which the wax comprises a blend or combination of hard wax, spirit bonding wax and paraffin wax.

9. A composition of matter according to any of the previous Claims in which the non-alcoholic part of the liquid component of the wax/liquid medium comprises a hydrocarbon solvent.

10. A composition according to Claim 9 in which the hydrocarbon solvent is turpentine, solvent naphtha or white spirit.

11. A composition of matter according to any of the previous claims in which the liquid medium contains up to 50% by weight of the alcohol.
- 5 12. A composition of matter according to any of the previous claims in which the liquid medium contains between 10% and 40% by weight of the alcohol.
13. Polish compositions substantially as described in the accompanying examples and containing tert.-butanol, sec-butanol, sec-propanol or iso-butanol. 10

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